823 SIGNING MATERIALS

823.01 SIGN POSTS

(A) TIMBER GROUND MOUNT SIGN POSTS. See 821.14(C).

(B) STEEL POSTS. See 823.03.

823.02 REFLECTIVE SHEETING

Reflective sheeting for sign panel faces shall meet the requirements of AASHTO M 268 for Type II and/or III as required by the contract documents. Class 1 or 2 adhesive, and color per the Manual of Uniform Traffic Control Devices and the AASHTO Manual for Signing and Pavement Marking of the National System of Interstate and Defense Highways.

823.03 STEEL SIGN STRUCTURES

The following material requirements apply: Steel Pipe - ASTM A 53, Type F; galvanized per ASTM A 386, Class B-1 plus ASTM A 384 and A 385; with 25,000 psi minimum yield stress; used for diagonals and verticals 4-1/2 inches O.D. and under.

ASTM A 53, Types E and S, Grade B galvanized per ASTM A 386, Class B-1 plus ASTM A 384 and A 385; with 35,000 psi minimum yield stress; used for truss chords, columns, and ground mount sign posts 4-1/2 inches O.D. and over.

Equivalent galvanized tapered tube sections may be used in place of above requirements provided there are no alterations to other sign structure detail.

Steel Plates & Shapes - AASHTO M 183 and galvanized per AASHTO M 111.

Steel Castings - AASHTO M 103, Grade 65-35 and galvanized per AASHTO M 111.

Catwalk Gratings - Borden Type B-7, Blaw-Knox Type 8N21, Irving Type A-A; or approved equal.

Pipe Connections and Couplings - Victaulic Turnpike type or approved equal and galvanized per ASTM A 153.

Post Caps - Cast post caps shall be gray iron per ASTM A 48 or carbon steel per ASTM A 27 and galvanized per ASTM A 153.

Turned and U Bolts and Nuts per ASTM A 307 and galvanized per ASTM A 153.

Anchor Bolts and Nuts and Washers - Carbon steel high strength bolts per AASHTO M 164, or Alloy Steel high strength bolts per ASTM A 490, and galvanized per ASTM A 153.

823.04 GUIDE SIGN PANELS, TRAFFIC SIGN PANELS, HAZARD MARKERS,

DEMOUNTABLE CHARACTERS AND DELINEATORS

Sheets and Plates for sign panels shall be 6061-T6 aluminum alloy meeting requirements of ASTM B 209. Alloy GS 11A, Condition T6.

Angles, Zees, and Lock Tabs for sign panel framing shall be extruded shapes of 6061-T6 aluminum alloy meeting requirements of ASTM B 221, Alloy GS11A, Condition T6.

Support Angles shall be AASHTO M 183 steel galvanized to requirements of AASHTO M 111.

Panel hardware, unless otherwise specified on the plans or herein, shall be stainless steel meeting requirements of ASTM A 276, Series 300 or clear anodized 2024-T4 aluminum alloy rod meeting requirements of ASTM B 211, Alloy CG42A. Reflective Sheeting shall meet requirements of 823.02.

Insulation shall be laminated insulating sheets meeting the requirements of Military Specification MIL-P-15035, Type FBM, FEG, FBE, or insulation sleeves meeting requirements of Military Specification MIL-P79B, Type FBM, FEG, or FBE. Samples of 9 insulating materials shall be submitted to the Engineer for approval prior to use.

Demountable Characters and Borders shall consist of embossed aluminum frames which are covered with reflective sheeting. As required, reflector buttons shall be mounted on the characters and borders.

Characters shall be fabricated from 0.04 inch sheet aluminum conforming to AASHTO M 290. All demountable letters and numerals shall be Federal Highway Administration Standard Alphabet, Modified Series E. Mounting holes shall be provided for fastening to sign panel; spacing of mounting holes shall be determined by character size and shape, but in no case shall holes be spaced more than 8 inches on center.

Reflector Buttons shall conform to AASHTO M 290 and shall be designed to be mounted on demountable characters and demountable sign borders by mechanical means that require no adhesive.

Hazard Marker and Delineator Reflectors shall consist of minimum 3 inch diameter, amber or colorless reflector units, as specified, meeting reflector button requirements as specified above. Specific brightness per amber reflectors shall be 60 percent of values shown for colorless reflector buttons.

Each reflector shall be mounted in a 5032-H32 aluminum housing formed to enclose the circumferential edge and back of reflector. Housing shall contain a single center mounting hole into which an aluminum grommet shall be expanded to an inside diameter of 3/16 inch. Mounting hardware shall be 2024-T4 aluminum alloy of vandal resistant design.

Non-Demountable Characters shall consist of cutouts of reflective sheeting applied directly to sign background. Reflective sheeting shall meet requirements of 823.02. Non- demountable letters and numerals shall be Federal Highway Administration Standard Alphabet Series specified on the plans. Where Interstate Route Markers are required for guide signs using non-demountable characters, the marker shields also shall be cutouts of reflective sheeting applied directly to sign face.

Silk Screen Paste for traffic signs shall be high quality black opaque face or transparent overlay type suitable for exterior use. The dry film shall be tough, smooth, hard, and free from all defects such as sagging, checking, wrinkling, and orange peeling.

Black silk screen paste shall be opaque, and formulated so that paste will not dry in the screen in less than 2 hours. It shall flow out and level uniformly over the screened area without running, sagging, or streaking.

Silk screen paste for transparent overlay shall be of such formulation that it can be applied by silk screen process to reflective sheeting so as to produce a true color, both under direct and reflected light. Paste ingredients shall be compatible with reflective sheeting surface so proper adhesion will result with no deterioration to the reflective sheeting. Green, red, and blue transparent overlay silk screen paste shall be approved and shall match the color standards of the MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (MUTCD).